

Changes to the Drawings

The attached sheet of drawings includes changes to FIG. 4. This sheet, replaces the original sheet including FIG. 4. In FIG. 4, reference character 442 has been changed to 412 to match the detailed description of the originally filed application.

Attachment: Replacement Drawings Sheet

Remarks

The applicants have carefully considered the Office action dated August 23, 2006. In view of the following remarks, reconsideration of the application is respectfully requested.

Claim Objections

In regard to the objections to claims 2-6, 8-10, 12-15, 17-21, 23-26, 28, 30-33, 35-36, and 38-40, it is well established law that each claim is a separate invention. *See Honeywell Int'l Inc. v. Hamilton Sundstrand Corp.*, 370 F.3d 1131, 1148-49 (Fed. Cir. 2004) (citing 35 U.S.C. § 282) ("Each claim defines a separate invention, whether or not written in independent form..."). To this end, each claim defines a class of inventive embodiments. Therefore, it is appropriate to use the "A" introduction for each claim. This is evident from the fact that such practice has been used in hundreds of issued patents. *See* U.S. 6,834,133 (December 2004); U.S. 6,959,028 (October 2005); and U.S. 6,963,894 (November 2005). In addition, the Manual of Patent Examining Procedure ("MPEP") shows example dependent claims using the "A" introduction. *See MPEP* § 608.01(n), subheading A. Accordingly, the applicants submit that claims 2-6, 8-10, 12-15, 17-21, 23-26, 28, 30-33, 35-36, and 38-40 comply with 35 U.S.C. § 112, second paragraph and respectfully request withdrawal of the objections based on informalities.

Rejections under 35 U.S.C. § 112

The applicants respectfully submit that any rejections under 35 U.S.C. § 112 that may have been proper are obviated by the forgoing amendments to the claims. Accordingly, the applicants respectfully request withdrawal of the objections based on the informalities.

Rejections under 35 U.S.C. § 103

In the Office action, claims 1-40 were rejected as unpatentable over Merkin (US Patent Appl. No. 2004/0158701) in view of Engelbrecht (US 6,601,153). In view of the forgoing amendments and the following remarks, the applicants respectfully submit that claims 1-40 are patentable over the cited references.

Independent claim 1 recites a method comprising, *inter alia*, before loading an operating system, creating a memory descriptor for subsets of a remaining memory, the memory descriptor being accessible by the operating system, and initializing the subsets of the remaining memory identified in the memory descriptor during operating system idle periods.

As explained below, Merkin is directed to a method of decreasing boot up time in a computer system. Merkin does not describe or suggest, 1) before loading an operating system, creating a memory descriptor for subsets of a remaining memory, the memory descriptor being accessible by the operating system. Even if Merkin suggests creating a memory descriptor for subsets of a remaining memory, a point that the applicants do not concede, Merkin does not describe or suggest 2) that the memory descriptor is accessible by the operating system for initializing the subsets of the remaining memory identified in the memory descriptor during operating system idle periods. Thus, Merkin is deficient in at least these two aspects.

The Office action states that “[i]t would be obvious to one of ordinary skill in the art to create a memory descriptor for the subsets of remaining memory for the system to identify the memory groups in the system.” (Page 6, lines 6-8). However, Merkin does not describe or suggest that any memory initialization is to occur in the context of the operating system. Rather, Merkin indicates that memory initialization is to occur while the operating system is

loading during a system management interrupt (SMI). The SMI disrupts operating system loading and returns the system context to the basic input/output system (BIOS). Therefore, based on the descriptions of Merkin, there would be no reason to include a memory descriptor that is available to the operating system. Further, the applicants respectfully submit that the examiner's statement is not based on any evidence and merely states the examiner's conclusion regarding what would have been obvious based on Merkin.

Further, Merkin provides no suggestion for initializing a subset of a remaining memory identified in the memory descriptor during operating system idle periods where the memory descriptor was created before loading the operating system. Rather, as previously stated, Merkin does not describe or suggest any memory initialization that occurs in the operating system. To the contrary, Merkin describes performing a plurality of SMIs to occur and initializing memory during the SMI (Paragraph [0046]). Accordingly, for at least the forgoing reasons, Merkin is deficient in describing the recitations of claim 1.

In rejecting claim 1, the Office action also cites Engelbrecht. While the applicants note that the Office action did not suggest that Engelbrecht describes or suggests, before loading an operating system, creating a memory descriptor for subsets of a remaining memory, the memory descriptor being accessible by the operating system or initializing the subsets of the remaining memory identified in the memory descriptor during operating system idle periods, an explanation of why Engelbrecht does not describe or suggest such recitations is provided for efficiency.

Engelbrecht is directed to a method and apparatus for increasing computer performance through asynchronous memory block initialization. In general, Engelbrecht describes initializing virtual memory when a normal instruction stream is idle. (Col. 3, lines 46-63). Engelbrecht does not describe or suggest, before loading an operating system,

creating a memory descriptor being accessible by the operating system. Rather, as illustrated by block 100 of FIG. 1, Engelbrecht is directed to operation after an operating system is loaded and the processor has begun processing an instruction stream.

Further, because Engelbrecht is directed to initialization of virtual memory, Engelbrecht could not be modified to create a memory descriptor of the virtual memory prior to loading an operating system because the pre-boot environment would not have access to or information about such virtual memory. Therefore, Engelbrecht cannot describe or suggest initializing a subset of a remaining memory identified in a memory descriptor during operating system idle periods where the memory descriptor is creating prior to loading the operating system.

In summary, neither Merkin nor Engelbrecht describes or suggests, before loading an operating system, creating a memory descriptor for subsets of a remaining memory, the memory descriptor being accessible by the operating system. Nor does Merkin or Engelbrecht describe or suggest initializing the subsets of the remaining memory identified in the memory descriptor during operating system idle periods. Accordingly, no combination of Merkin and Engelbrecht can describe or suggest all of these two aspects of claim 1. Thus, for at least the forgoing reasons, claim 1 and all claims depending therefrom are in condition for allowance.

Claim 7 recites a method comprising, *inter alia*, before loading an operating system, creating a memory descriptor for subsets of a remaining memory, the memory descriptor being accessible by the operating system. For at least the forgoing reasons, neither Merkin nor Engelbrecht nor any combination thereof describes or suggests, before loading an operating system, creating a memory descriptor for subsets of a remaining memory, the

memory descriptor being accessible by the operating system. Accordingly, claim 7 and all claims depending therefrom are in condition for allowance.

Claim 11 recites a method comprising, *inter alia*, before loading an operating system, creating a memory descriptor identifying a subset of memory that has not been initialized, the memory descriptor being accessible by the operating system and initializing the subsets of the memory identified in the memory descriptor during operating system idle periods. For at least the reasons provided for claim 1, neither Merkin nor Engelbrecht nor any combination thereof describes or suggests, before loading an operating system, creating a memory descriptor identifying a subset of memory that has not been initialized, the memory descriptor being accessible by the operating system and initializing the subsets of the memory identified in the memory descriptor during operating system idle periods. Accordingly, claim 11 and all claims depending therefrom are in condition for allowance.

Claim 16 recites an apparatus comprising, *inter alia*, a memory descriptor module configured to generate a data structure to indicate a presence of a subset of a remaining memory before an operating system is loaded, the memory descriptor being accessible by the operating system. For at least the reasons provided for claim 1, neither Merkin nor Engelbrecht nor any combination thereof describes or suggests generating a data structure to indicate a presence of a subset of a remaining memory before an operating system is loaded, the memory descriptor being accessible by the operating system. Accordingly, claim 16 and all claims depending therefrom are in condition for allowance.

Claim 22 recites an article of manufacture having instructions stored thereon that, when executed, cause a machine to, *inter alia*, create a memory descriptor for the subsets of a remaining memory before loading the operating system, the memory descriptor being accessible by the operating system, and initialize subsets of the remaining memory identified

in the memory descriptor during operating system idle periods. For at least the reasons provide for claim 1, neither Merkin nor Engelbrecht nor any combination therefore describes or suggests creating a memory descriptor for the subsets of a remaining memory before loading the operating system, the memory descriptor being accessible by the operating system, initializing subsets of the remaining memory identified in the memory descriptor during operating system idle periods. Accordingly, claim 22 and all claims depending therefrom are in condition for allowance.

Claim 27 recites an apparatus comprising, *inter alia*, a memory descriptor module configured to generate a data structure to indicate a presence of the subsets of the remaining memory before loading an operating system, the remaining memory being accessible by the operating system. For at least the reasons provide for claim 1, neither Merkin nor Engelbrecht nor any combination therefore describes or suggests generating a data structure to indicate a presence of the subsets of the remaining memory before loading an operating system, the remaining memory being accessible by the operating system. Accordingly, claim 27 and all claims depending therefrom are in condition for allowance.

Claim 34 recites an article of manufacture having instructions stored thereon that, when executed, cause a machine to, *inter alia*, create a memory descriptor accessible by an operating system for subsets of a remaining memory before loading the operating system. For at least the reasons provide for claim 1, neither Merkin nor Engelbrecht nor any combination therefore describes or suggests creating a memory descriptor accessible by an operating system for subsets of a remaining memory before loading the operating system. Accordingly, claim 34 and all claims depending therefrom are in condition for allowance.

Claim 37 recites an article of manufacture having instructions stored thereon that, when executed, cause a machine to, *inter alia*, create a memory descriptor accessible by an

operating system for subsets of a remaining memory before loading the operating system and initialize the subsets of the remaining memory identified in the memory descriptor during operating system idle periods. For at least the reasons provide for claim 1, neither Merkin nor Engelbrecht nor any combination therefore describes or suggests creating a memory descriptor accessible by an operating system for subsets of a remaining memory before loading the operating system and initializing the subsets of the remaining memory identified in the memory descriptor during operating system idle periods. Accordingly, claim 37 and all claims depending therefrom are in condition for allowance.

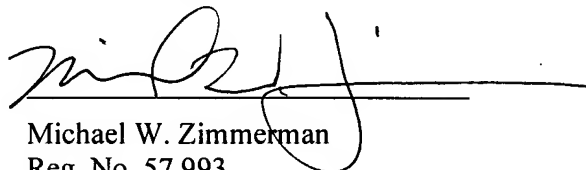
Conclusion

Reconsideration of the application and allowance thereof are respectfully requested. If there is any matter that the examiner would like to discuss, the examiner is invited to contact the undersigned representative at the telephone number set forth below.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'Michael W. Zimmerman', is written over a horizontal line.

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